

Name \_\_\_\_\_

Date \_\_\_\_\_ Period \_\_\_\_\_

## PHASE CHANGE WORKSHEET

The graph was drawn from data collected as a substance was heated at a constant rate. Use the graph to fill in the blanks.

At **point A**, the beginning of observations, the substance exists in a solid state.

Material in this phase has \_\_\_\_\_ volume and \_\_\_\_\_ shape. With each passing minute \_\_\_\_\_ is added to the substance. This causes the molecules \_\_\_\_\_ more rapidly which we detect by a \_\_\_\_\_ rise in

the substance, this results in a change in \_\_\_\_\_ energy. At **point B**, the temperature of the substance is \_\_\_\_\_ °C. The solid begins to \_\_\_\_\_.

At **point C**, the substance is completely \_\_\_\_\_ or in a \_\_\_\_\_ state.

Material in this phase has \_\_\_\_\_ volume and \_\_\_\_\_ shape. The energy put to the substance between minutes 5 and 9 was used to convert the substance from \_\_\_\_\_ to \_\_\_\_\_. This heat energy is called the **heat of fusion** and is causing a change in \_\_\_\_\_ energy.

Between 9 and 13 minutes, the added energy increases the \_\_\_\_\_ of the substance. During the time from **point D to point E**, the liquid is \_\_\_\_\_.

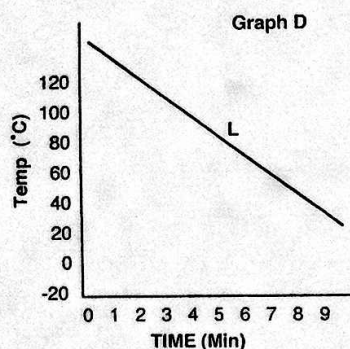
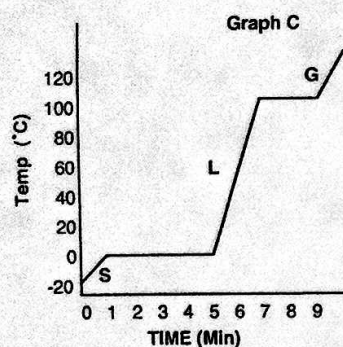
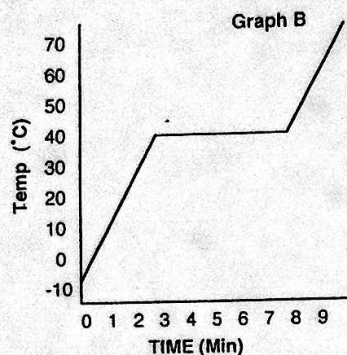
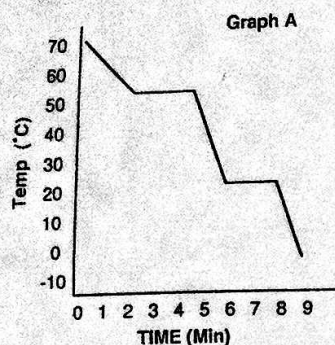
By **point E**, the substance is completely in the \_\_\_\_\_ phase. Material in this phase has an \_\_\_\_\_ volume and \_\_\_\_\_ shape. The energy put to the substance between minutes 13 and 18 converted the substance from a

\_\_\_\_\_ to a \_\_\_\_\_ state. This heat energy is called the **heat of vaporization**. Beyond **point E**, the substance is still in the \_\_\_\_\_ phase, but the molecules are moving \_\_\_\_\_ as indicated by the increasing temperature.

Which of these three substances was likely to be used in this phase change experiment ???

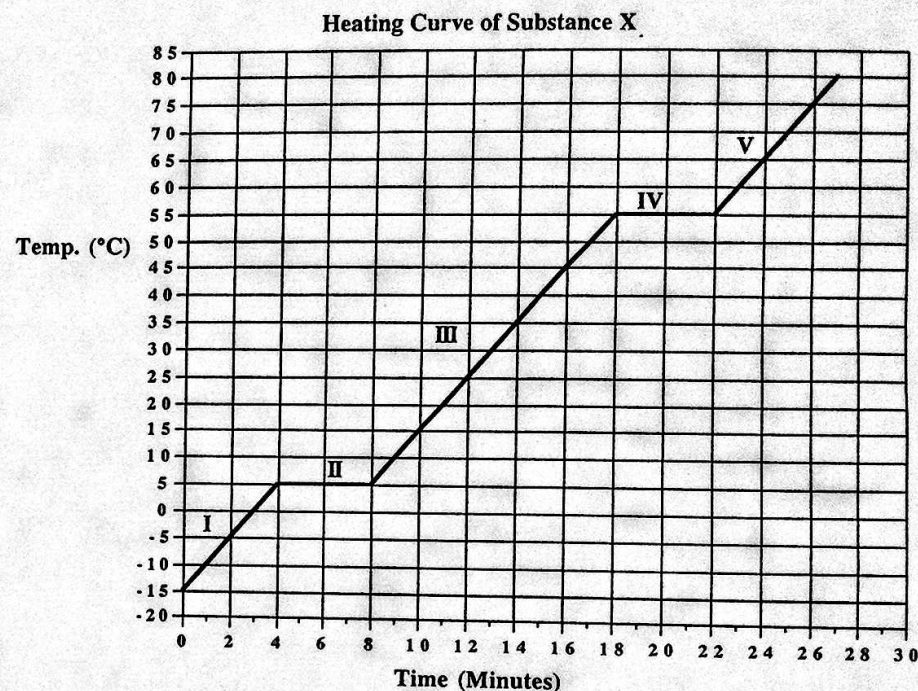
Substance	Melting Point	Boiling Point
Bolognium	20°C	100°C
Unobtainium	40°C	140°C
Foosium	70°C	140°C

## HEATING AND COOLING CURVE REVIEW



## CHEMISTRY

## HEATING CURVE WORKSHEET



The heating curve shown above is a plot of temperature vs time. It represents the heating of substance X at a constant rate of heat transfer. Answer the following questions using this heating curve:

- 1) In graph A, what phases are present at 50 °C?
- 2) How many phase changes take place in graph B? \_\_\_\_\_  
In graph C? \_\_\_\_\_ What phase changes take place in graph D?
- 3) In graph B, during what time interval is the substance entirely a solid? \_\_\_\_\_  
A liquid? \_\_\_\_\_
- 4) What graph could represent pure water?
- 5) Are any of the substances the same? \_\_\_\_\_ How do you know?
- 6) At what time in graph B has the substance just finished melting? \_\_\_\_\_

1. In what part of the curve would substance X have a definite shape and definite volume?
2. In what part of the curve would substance X have a definite volume but no definite shape?
3. In what part of the curve would substance X have no definite shape or volume?
4. What part of the curve represents a mixed solid/liquid phase of substance X?
5. What part of the curve represents a mixed liquid/vapor phase of substance X?
6. What is the melting temperature of substance X?
7. What is the boiling temperature of substance X?